Manage traditional and vVols datastores

VSC, VASA Provider, and SRA 9.7

NetApp
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You can use the VSC interface to manage both traditional and VMware Virtual Volumes (vVols) datastores and perform mount, resize, edit, and remove datastore operations.

Mount datastore on additional hosts

Mounting a datastore provides storage access to additional hosts. You can mount the datastore on the additional hosts after you add the hosts to your VMware environment.

Before you begin

You must ensure that the subnet details of all the networks to which the ESXi hosted is connected is entered in the `Kaminoprefs.xml`.

See Enabling datastore mounting across different subnets section in *VSC 9.6 Deployment and Setup Guide*.

Steps

1. From the vSphere Client **Home** page, click **Hosts and Clusters**.
2. In the navigation pane, select the datacenter that contains the host.
3. Repeat Step 2 for any additional hosts.
4. Right-click the host and select **NetApp VSC › Mount Datastores**.
5. Select the datastores that you want to mount, and then click **OK**.

Resize datastores

Resizing a datastore enables you to increase or decrease the storage for your virtual machine files. You might need to change the size of a datastore as your infrastructure requirements change.

Before you begin

If you want VSC to resize the containing volume when it resizes the VMFS datastore, you should not use the **Use existing volume** option under **Storage attributes** section when initially provisioning VMFS datastore, but instead let it automatically create a new volume for each datastore.

About this task

You can increase or decrease the size of an NFS datastore. You can only increase the size of a VMFS datastore.

Steps

1. From the vSphere Client **Home** page, click **Hosts and Clusters**.
2. In the navigation pane, select the datacenter that contains the datastore.
3. Right-click the datastore and select **NetApp VSC › Resize**.
4. In the **Resize** dialog box, specify a new size for the datastore, and then click **OK**.

   You can run the **REDISCOVER ALL** option in the **Storage Systems** menu to manually update the storage listing under Storage Systems and dashboard, or wait for the next scheduled refresh.

Edit a vVols datastore

You can edit an existing VMware Virtual Volumes (vVols) datastore to change the default storage capability profile. The default storage capability profile is primarily used for Swap vVols.

Steps

1. From the vSphere Client page, click **Hosts and Clusters**.
2. Right-click the datastore, and then select **NetApp VSC › Edit Properties of vVol Datastore**.

   The Edit Properties of vVol Datastore dialog box is displayed.

3. Make the required changes.

   You can change the default storage capability profile for the vVols datastore by selecting a new profile from the drop-down list in the Edit vVol Datastore dialog box. You can also change the vVols datastore name and description.

   You cannot change the vCenter Server where the vVols datastore is located.

4. When you have made your changes, click **OK**.

   A message box asks whether you want to update the vVols datastore.

5. Click **OK** to apply your changes.

   A success message appears to inform that the vVols datastore has been updated.

Add storage to a vVols datastore

You can increase the available storage by using the **Add Storage** wizard to add FlexVol volumes to an existing VMWare Virtual Volumes (vVols) datastore.

About this task

When you add a FlexVol volume, you also have the option of changing the storage capability profile associated with that volume. You can either use the VASA Provider auto-generate feature to create a new profile for the volume, or you can assign one of the existing profiles to the volume.

- While expanding a vVols datastore with replication capabilities, you cannot created new FlexVol volumes but can only select pre-configured FlexVol volumes from the existing list.
- When cloning a protected virtual machine deployed on datastore with vVols replication fails due to insufficient space, then you should increase the FlexVol volume size.
- When a vVols datastore is created on a AFF cluster, then you cannot expand the datastore with another FlexVol volume that has auto generate storage capability profile.

  You can expand the vVols datastore with FlexVol volumes that have pre-created storage capability profiles.

Steps

1. On the vSphere Client **Home** page, click **Hosts and Clusters**.
2. Right-click the vVols datastore, and then select **NetApp VSC › Expand Storage of vVol Datastore**.
3. On the **Expand Storage of vVol Datastore** page, you can either add an existing FlexVol volume to the vVols datastore, or create a new FlexVol volume to add to the database.

If you select…	Perform the following…
Select volumes	a. Select the FlexVol volumes that you want to add to the vVols datastore. b. In the **Storage Capability Profiles** column, use the drop-down list to either create a new profile based on the FlexVol volumes, or select one of the existing profiles. The auto-generate feature creates a profile based the storage capabilities that are associated with that FlexVol volume. For example: disk type, high availability, disaster recovery, performance features, and deduplication.
Create new volumes	a. Enter the name, size, and storage capability profile for the FlexVol. The aggregates are selected by the system based on the storage capability profile selected. b. Select the **Auto Grow** option and provide the maximum size. c. Click **ADD** to add the FlexVol to the list of volumes.

Reminder: All FlexVol volumes in a vVols datastore must be from the same storage virtual machine (SVM, formerly known as Vserver).

After you create a FlexVol volume, you can edit it by clicking the **Modify** button. You can also delete it.

4. Select a default storage capability profile to be used during virtual machine creation, and then click **Next** to review the summary of the storage added to vVols datastore.
5. Click **Finish**.

The wizard adds the storage that you specified to the vVols datastore. It displays a success message when it finishes.

The **Expand Storage of vVol Datastore** wizard automatically handles any ESXi storage rescans or any other significant operations that are required. Because a vVols datastore is a logical entity controlled by VASA Provider, adding the FlexVol volume is the only thing you need to do to enlarge the capacity of your storage container.

Remove storage from a vVols datastore

If a VMware Virtual Volumes (vVols) datastore has multiple FlexVol volumes, you can remove one or more of the FlexVol volumes from the vVols datastore without deleting the datastore.

About this task

A vVols datastore exists until there is at least one FlexVol volume on the datastore.

Steps

1. From the vSphere Client **Home** page, click **Hosts and Clusters**.
2. Right-click the vVols datastore that you want to modify, and then select **NetApp VSC › Remove Storage from vVol Datastore**.

   The **Remove Storage from vVol Datastore** dialog box is displayed.
3. Select the FlexVol volumes that you want to remove from the vVols datastore, and click **Remove**.
4. Click **OK** in the confirmation dialog box.

   If you select all of the FlexVol volumes, an error message is displayed, indicating that the operation will fail.

Mount a vVols datastore

You can mount a VMware Virtual Volumes (vVols) datastore to one or more additional hosts by using the Mount vVol Datastore dialog box. Mounting the datastore provides storage access to additional hosts.

Steps

1. From the vSphere Client **Home** page, click **Hosts and Clusters**.
2. Right-click the datastore that you want to mount, and then select **NetApp VSC › Mount vVol Datastore**.

   The **Mount vVol Datastore** dialog box is displayed, which provides a list of the hosts that are available in the datacenter where you can mount the datastore. The list does not include the hosts on which the datastore has already been mounted, hosts that are running ESX 5.x or earlier, or hosts that do not support the datastore protocol. For example, if a host does not support the FC protocol, you cannot mount an FC datastore to the host.

   Even though the vSphere Client provides a mount dialog box for the vCenter Server, you must always use the VASA Provider dialog box for this operation. VASA Provider sets up access to storage systems that are running ONTAP software.
3. Select the host on which you want to mount the datastore, and then click **OK**.

Considerations for migrating or cloning virtual machines

You should be aware of some of the considerations while migrating exisitng virtual

machines in your datacenter.

Migrate protected virtual machines

You can migrate the protected virtual machines to:

- Same vVols datastore in a different ESXi host
- Different compatible vVols datastore in same ESXi host
- Different compatible vVols datastore in a different ESXi host

If virtual machine is migrated to different FlexVol volume, then respective metadata file also gets updated with the virtual machine information. If a virtual machine is migrated to a different ESXi host but same storage then underlying FlexVol volume metadafile will not be modified.

Clone protected virtual machines

You can clone protected virtual machines to the following:

- Same container of same FlexVol volume using replication group

  Same FlexVol volume's metadata file is updated with the cloned virtual machine details.

- Same container of a different FlexVol volume using replication group

  The FlexVol volume where the cloned virtual machine is placed, the metadata file gets updated with the cloned virtual machine details.

- Different container or vVols datastore

  The FlexVol volume where the cloned virtual machine is placed, the metadata file gets updated virtual machine details.

VMware presently does not support virtual machine cloned to a VM template.

Clone-of-Clone of a protected virtual machine is supported.

Virtual Machine snapshots

Presently only virtual machine Snapshots without memory are supported. If virtual machine has Snapshot with memory, then the virtual machine is not considered for protection.

You also cannot protect unprotected virtual machine that has memory Snapshot. For this release, you are expected to delete memory snapshot before enabling protection for the virtual machine.

Migrate traditional virtual machines to vVols datastores

You can migrate virtual machines from traditional datastores to Virtual Volumes (vVols) datastores to take advantage of policy-based VM management and other vVols capabilities. vVols datastores enable you to meet increased workload requirements.

Before you begin

You must have ensured that VASA Provider is not running on any of the virtual machines that you plan to migrate. If you migrate a virtual machine that is running VASA Provider to a vVols datastore, you cannot perform any management operations, including powering on the virtual machines that are on vVols datastores.

About this task

When you migrate from a traditional datastore to a VVol datastore, the vCenter Server uses vStorage APIs for Array Integration (VAAI) offloads when moving data from VMFS datastores, but not from an NFS VMDK file. VAAI offloads normally reduce the load on the host.

Steps

1. Right-click the virtual machine that you want to migrate, and then click **Migrate**.
2. Select **Change storage only**, and then click **Next**.
3. Select a virtual disk format, a VM Storage Policy, and a VVol datastore that matches the features of the datastore that you are migrating, and then click **Next**.
4. Review the settings, and then click **Finish**.

Migrate virtual machines with older storage capability profiles

If you are using the latest version of the virtual appliance for Virtual Storage Console (VSC), VASA Provider, and Storage Replication Adapter (SRA), then you should migrate your virtual machines that are provisioned with the “MaxThroughput MBPS” or “MaxThroughput IOPS” QoS metrics to new VVol datastores that are provisioned with the “Max IOPS” QoS metrics of the latest version of the virtual appliance for VSC, VASA Provider, and SRA.

About this task

With the latest version of the virtual appliance for VSC, VASA Provider, and SRA, you can configure QoS metrics for each virtual machine or virtual machine disk (VMDK). The QoS metrics were earlier applied at the ONTAP FlexVol volume level and were shared by all of the virtual machines or VMDKs that were provisioned on that FlexVol volume.

Starting with the 7.2 version of the virtual appliance for VSC, VASA Provider, and SRA, the QoS metrics of one virtual machine is not shared with other virtual machines.

You must not modify the existing VM Storage Policy as the virtual machines might become non-compliant.

Steps

1. Create VVol datastores by using a new storage capability profile with the required “Max IOPS” value.
2. Create a VM Storage Policy, and then map the new VM Storage Policy with the new storage capability profile.
3. Migrate the existing virtual machines to the newly created VVol datastores by using the new VM Storage Policy.

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